Report of Results: MVA5394

Analysis of Settled Dust Ventura Youth Correctional Facility

Prepared for:

State of California
Dept of General Services
Seismic & Special Programs
707 West 3rd St.
West Sacramento, CA 95605

Respectfully Submitted by:

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29 August 2007



Report of Results: MVA5394

#### Analysis of Settled Dust - Ventura Youth Correctional Facility

#### Introduction

On 24 July 2007, we received five settled dust samples from Clark Sief Clark, reportedly collected from the Ventura Youth Correctional Facility, 3100 Wright Rd, SPC Bldg., Camarillo, California. We were asked to determine the asbestos levels in the dust and possible sources for the asbestos. Upon receipt, the samples were assigned MVA Scientific Consultants laboratory identification numbers as follows:

Sample Description	MVA Number
SPC center corridor bet. SPC 9 & SPC 5-	
Top of ceiling tile	S0890
SPC Control @ entry, Top of ceiling tile	S0891
SPC 11-Center of room, Top of ceiling tile	S0892
SPC 10-Next to door, Top of ceiling tile	S0893
SPC 10-Over Piano, Top of ceiling tile	S0894
	SPC center corridor bet. SPC 9 & SPC 5- Top of ceiling tile SPC Control @ entry, Top of ceiling tile SPC 11-Center of room, Top of ceiling tile SPC 10-Next to door, Top of ceiling tile

All analyses were carried out in our laboratory during the period 24 July through 27 August 2007.

#### Methods

The samples were analyzed according to ASTM Method D5755-03 using either a Philips model EM420 or a Philips model CM120 transmission electron microscope (TEM), equipped with an Oxford INCA energy dispersive x-ray spectrometer (EDS). Additional analyses for dust constituents that may serve as source indicators were also conducted by TEM/EDS.

#### **Results and Discussion**

The results of analysis for these samples are presented in Table 1. The Appendix contains a summary of the analytical results, the laboratory count sheets, and images and EDS spectra of typical asbestos fibers found in these samples. Also contained in the appendix are images and spectra showing vermiculite associated with chrysotile fibers and other asbestiform amphibole minerals typical of those known as "Libby amphibole" and observed as contaminants in vermiculite from the Libby, Montana vermiculite mine operated by W.R. Grace.



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#### Conclusions

Dust analyzed in this study contains elevated levels of chrysotile asbestos. Portions of the dust are consistent with derivation from a chrysotile/vermiculite bearing fireproofing. Asbestiform amphibole consistent with "Libby amphibole" was also found, indicating that the vermiculite in this sample originated at least in part at W.R. Grace's Libby vermiculite mine.

**Table 1. Asbestos Concentration in Settled Dust Samples** 

Sample ID	MVA Number	Asbestos Str/cm <sup>2</sup>
27VA	S0890	88,966,667
28VA	S0891	46,053,333
29VA	S0892	8,373,333
30VA	S0893	None Detected
31VA	S0894	26,515,556

TEM Micro-Vacuum Chain of Custody-

Same Day ₹ Requested TAT (Circle One) Analysis Type (Circle One)

One Day (24hr) Surface

Normal (48hr)

Water

뿗

Total Pages Analysis ype of of Volume/Area 180a 100 cm 12 Ch 82 Total Analysis By (Print & Sign) Page # Analysis Date & Time Dano Client Information: Total. Time 2m12 र्व 9.50A Date(s) Taken enu 0 Start Time End Time Date & Time 202-2/12 Start Flow Rate 10.7 End Flow Rate 10.01 10.9/ 10.91 10.5 # of Samples Cer 11:15-1 TAGEL 172 F Pump # 1901 h Sampling By Blds. Received By (Print 40000 Received By lan0 ovverhous 7.23.07 C/2; Sample Location 1086 Project Name & Location: Date & Time Claim # TAX PC Sampling Area and/or Building #: entura SELLE Relinquished By (Print & Sign) CSC Project# 3/00 Date TRANCO 2814 30VA Sample # 2901

Clark Self Clark- 21732 Devonshire Street, 2nd Floor, Chatsworth, CA 91311, Ph (818) 727-2553, Fax (818) 727-2556

## **APPENDIX**



#### **ASTM D5755 Results**

MVA 5394

By:

W.Hill

Client project number:

Str/cm = No Str. X CFA X Total Vol.

Grid Op. X GO Area X Vol Filt X Area Sampled

MVA #:	S0890	Client #:	27.VA			
Str. #	CFA	#GO	Area GO	Vol Filt ml	Total Vol.	Area Samp.
51	1256	8	0.009	0.01	100	100

Anal. Sens =

1744444.444

Str/CM2 LOD =3\* Anal. Sens =

5233333.333

Total =

88966666.667

67 Str/CM2

MVA #:	S0891	Client #:	28.VA				
Str. #	CFA	#GO	Area GO	Vol Filt mi	Total Vol.	Area Samp.	1
33	1256	10	0.009	0.01	100	100	_

Anal. Sens =

1395555.556

Str/CM2 LOD =3\* Anal. Sens =

4186666.667

Total =

46053333.333

Str/CM2

MVA#:	S0892	Client #:	29.VA	<u></u>		
Str. #	CFA	#GO	Area GO	Vol Filt ml	Total Vol.	Area Samp.
6	1256	10	0.009	0.01	100	100

Anal. Şens =

1395555.556

Str/CM2 LOD =3\* Anal. Sens =

4186666.667

Total =

8373333.333

Str/CM2

MVA#:	S0893	Client #:	30.VA			
Str. #	CFA	#GO	Area GO	Vol Filt ml	Total Vol.	Area Samp.
	0 1256	10	0.009	0.1	100	100

Anal. Sens =

139555.556

Str/CM2 LOD =3\* Anal. Sens =

418666.667

Total =

0.000

Str/CM2

MVA#:	S0894	Client #:	31.VA			
Str. #	CFA	#GO	Area GO	Vol Filt mi	Total Vol.	Area Samp.
19	1256	10	0.009	0.01	100	100

Anal. Sens =

1395555.556

Str/CM2 LOD = 3\* Anal. Sens =

4186666.667

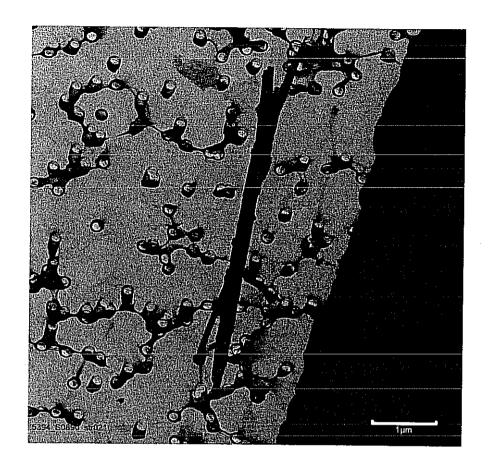
Total =

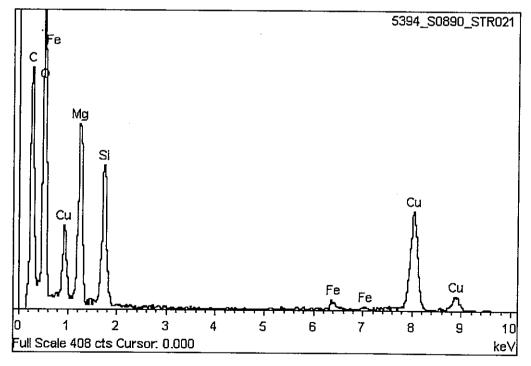
26515555.556

Str/CM2

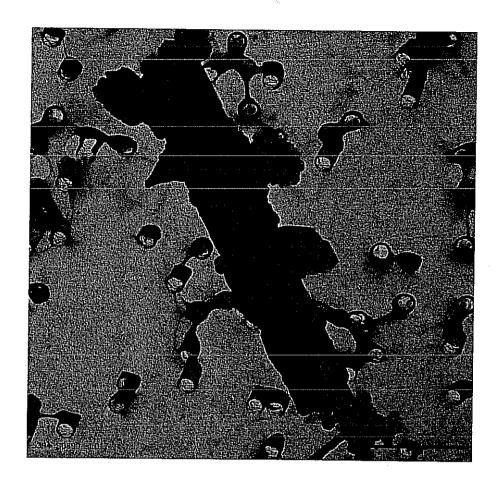


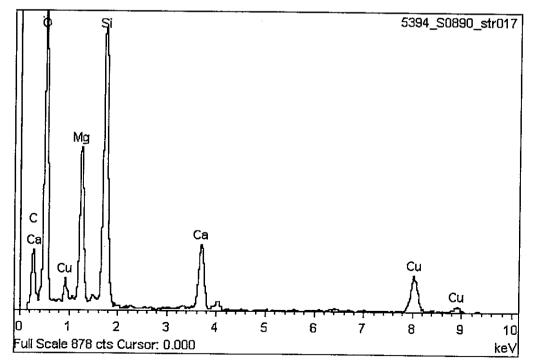
<sup>\*</sup>According to ASTM D6620



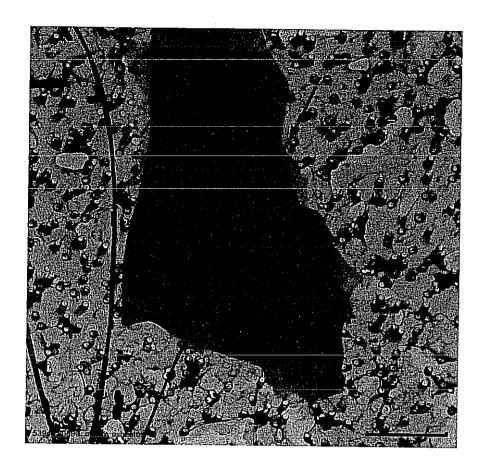


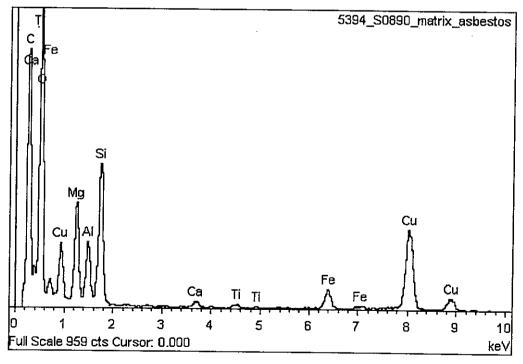






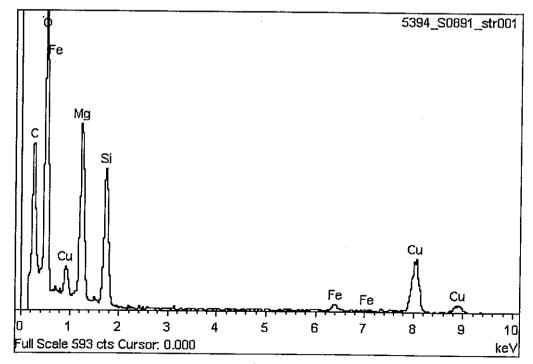




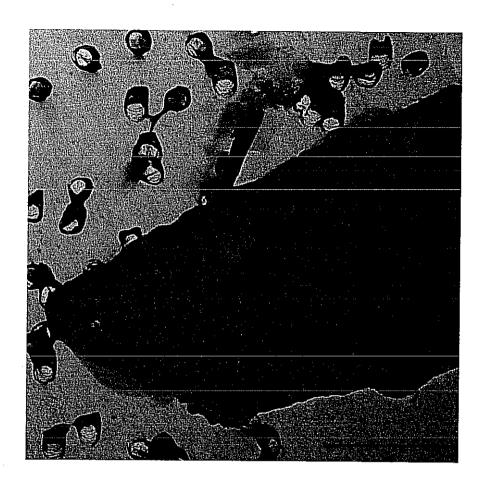


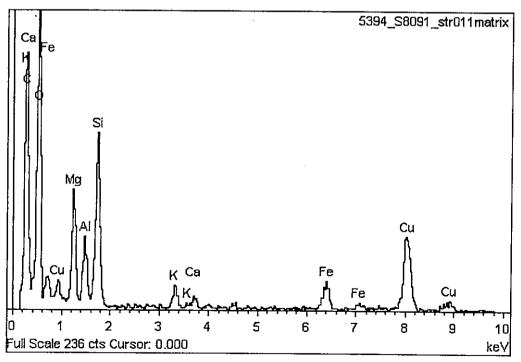




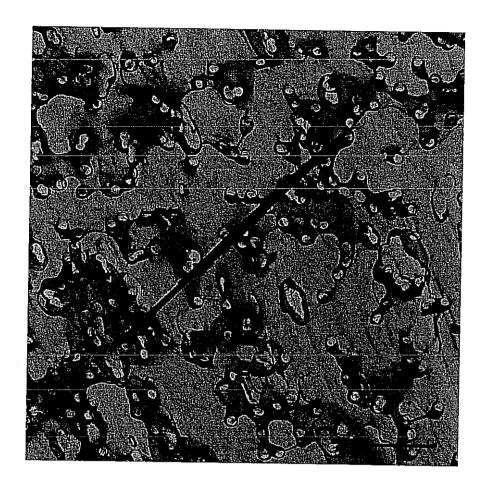


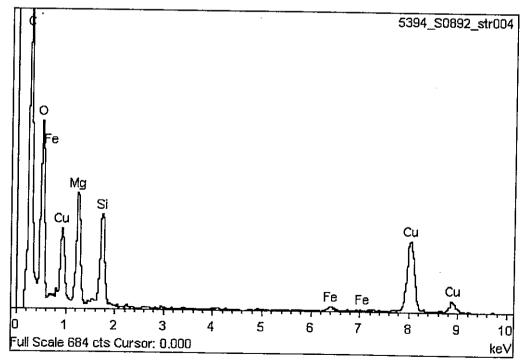




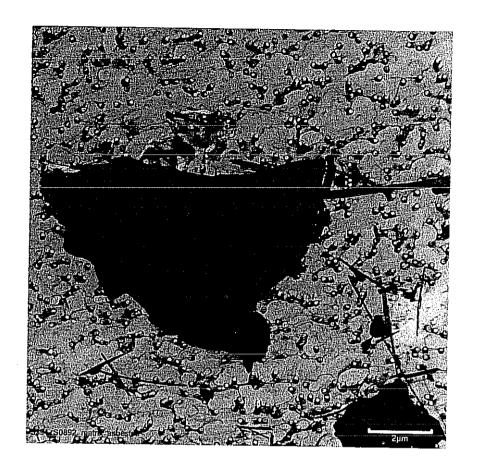


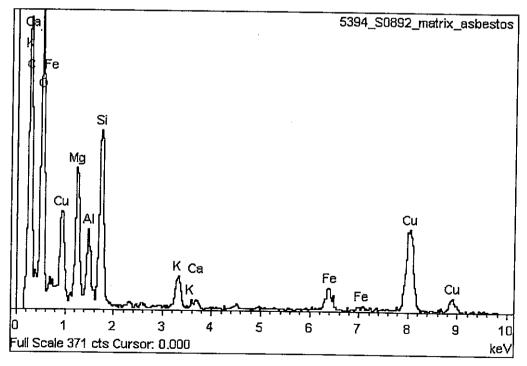




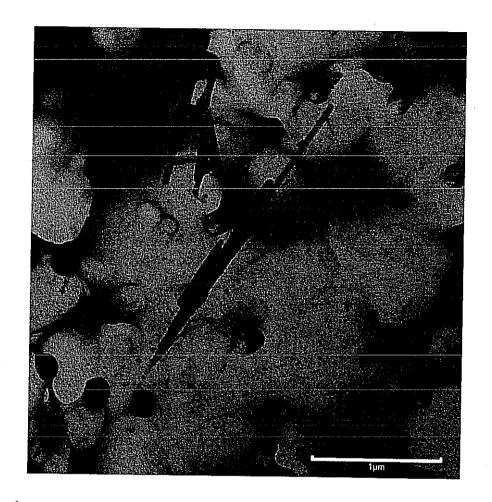


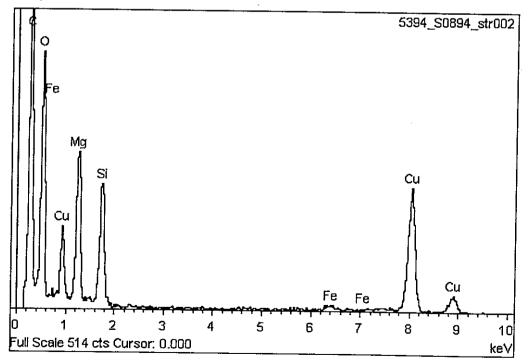




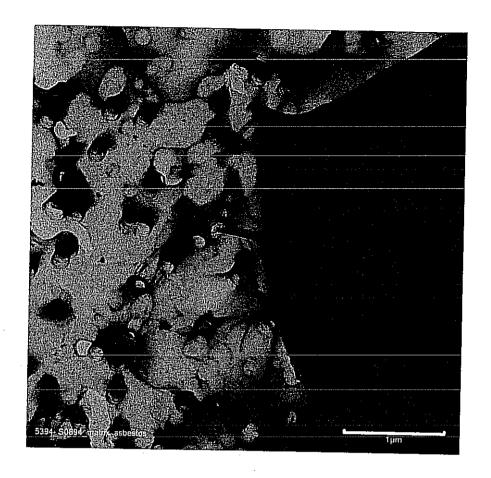


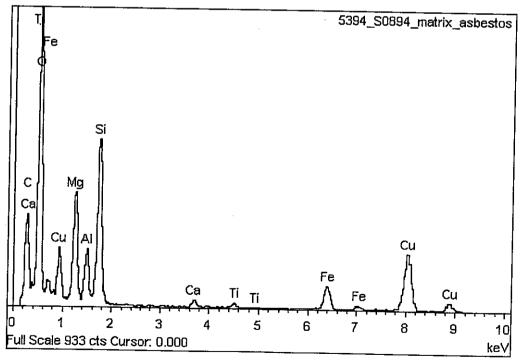














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Surface Dust Sample Analysis Sheet

MVA Project# 5394 Amt Collected(cm<sup>2</sup>): 100 Analyst: WH MVA Sample# S0890 Amt Prepped(cm<sup>2</sup>): 0.01 Date: 8/14/2007 Client I.D.: 27VA Filter Area (mm²): 1256 Page: 1 of 2 Instrument: Philips 120 Filter Type: PC Comments: 0.01 ml Magnification: 24,000 Openings Analyzed: ASTM Method: D6480 Acc. Voltage: 100 Grid Opening (mm²): 0.009 or D5755

Grid	Opening	Structure Number*	Structure Type	Length** (cm)	Width** (cm)	SAED	£D\$	Comments	Length*** (µm)	Width*** (µm)
1	H7	1	F	6	0.1	С			2.5	0.04
		2	F	9.0	0.1	С			3.8	0.04
<u> </u>		3	F	30.0	0.1	С			12.5	0.04
<u></u>		4	F	36.5	0.1	С			15.2	0.04
	G3	5	F	26.5	0.1	С			11.0	0.04
		6	F	13.5	0.1	С			5.6	0.04
		. 7	F	11.0	0.1	С			4.6	0.04
		8	F	4.9	0.1	С			2.0	0.04
		9	F	2.6	0.1	С			1.1	0.04
<u></u>		10	F	10.5	0.1	С			4.4	0.04
		11	M	16.5	0.1	С			6.9	0.04
		12	F	3.5	0.1	С			1.5	0.04
	E4	13	F	13.0	0.1	С			5.4	0.04
	•	14	F	2.5	0.1	С			1.0	0.04
L		15	F	10.5	0.1	С			4.4	0.04
	F8	16	М	1.5	0.1	С			0.6	0.04
		17	F	18.0	1.5	Α	TR	photo	7.5	0.63
i		18	F	3.1	0.1	C			1.3	0.04
		19	F	23.0	0.2	С			9.6	0.08
		20	M	2.5	0.1	С			1.0	0.04
		21	F	3.5	0.2	С			1.5	0.08
<u> </u>		22	F	7.0	0.1	С	-		2.9	0.04
		23	С	2.5	0.3	С			1.0	0.13
		24	F	2.5	0.1	С			1.0	0.04
		25	F	3.5	0.1	С			1.5	0.04
		26	F	9.0	0.1	C			3.8	0.04
	B6	27	F	4.5	0.1	С			1.9	0.04
		28	M	8.5	0.1	C			3.5	0.04
		29	F	21.5	0.1	С			9.0	0.04
		30	F	4.0	0.1	С			1.7	0.04
		31	. В	12.5	0.7	С	С	photo	5.2	0.29
2	B3	32	F	2.5	0.15	С			1.0	0.06
		33	F	3.5	0.1	С			1.5	0.04
		34	F	5.0	0.2	С			2.1	80.0
<u> </u>	ļ_	35	В	5.0	0.5	С			2.1	0.21

<sup>\*</sup>NFD or NSD = No Fibers Detected or No Structures Detected

Structure Type: B = Bundle, C = Cluster, F = Fiber, M = Matrix

SAED: C = Chrysotile, A = Amphibole

<sup>\*\*</sup> On Screen Measurement

<sup>\*\*\*</sup> Calculated Actual Measurement (On Screen Measurement X 10,000/Magnification)

EDS: C = Chrysotile, AM = Amosite, CR = Crocidolite, AC = Actinolite, AN = Anthophyllite, TR = Tremolite, N = Non Asbestos

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Surface Dust Sample Analysis Sheet

act outliple Allalysis office	
Amt Collected(cm <sup>2</sup> ): 100	Analyst: WH
Amt Prepped(cm²): 0.01	Date: 8/14/2007
Filter Area (mm²): 1256	Page: 2 of 2
Filter Type: PC	Comments: 0.01 ml
Openings Analyzed: 8	ASTM Method: D6480
Grid Opening (mm²): 0.009	or D5755 X
	Amt Collected(cm²):       100         Amt Prepped(cm²):       0.01         Filter Area (mm²):       1256         Filter Type:       PC         Openings Analyzed:       8

Grid	Opening	Structure Number*	Structure Type	Length** (cm)	Width** (cm)	SAED	EDS	Comments	Length***	Width***
2	B3	36	F	3	0.1	С		Continents	(µm) 1.3	(µm) 0.04
	<u> </u>	37	F	13.0	0.1	C			5.4	
	<b>C</b> 7	38	F	2.8	0.15	C	<del> </del>			0.04
	<del> </del>	39	F	2.0	0.15	C			1.2	0.06
ļ		40	F	6.5	0.15	С			0.8	0.06
		41	F	2.0	0.13	С			2.7	0.06
	E9	42	В	8.0					0.8	0.04
	20	43	В		0.5	C	<del> </del>		3.3	0.21
· .		44	F	4.5	0.5	С	· .		1.9	0.21
			<del> </del>	4.5	0.1	С		<u> </u>	1.9	0.04
		45	F	6.9	0,1	С			2.9	0.04
		46	F	20.5	0.1	С			8.5	0.04
		47	F	27.5	0.1	С			11.5	0.04
<b>-</b>		48	В	5.5	0.6	С			2.3	0.25
		49	F	20.5	0.1	С			8.5	0.04
		50	F	22.0	0.1	С			9.2	0.04
<u> </u>		51	F	3.5	0.1	С			1.5	0.04
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<sup>\*</sup>NFD or NSD = No Fibers Detected or No Structures Detected

Structure Type: B = Bundle, C = Cluster, F = Fiber, M = Matrix

SAED: C = Chrysotile, A = Amphibole

EDS: C = Chrysotile, AM = Amosite, CR = Crocidolite, AC = Actinolite, AN = Anthophyllite, TR = Tremolite, N = Non Asbestos

<sup>\*\*</sup> On Screen Measurement

<sup>\*\*\*</sup> Calculated Actual Measurement (On Screen Measurement X 10,000/Magnification)

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Surface Dust Sample Analysis Sheet

		Canace Dast cample t	maiyala olice	·L
MVA Project#_	5394	Amt Collected(cm <sup>2</sup> ):	100	Analyst: WH
MVA Sample#_	S0891	Amt Prepped(cm²):	0.01	Date: 8/14/2007
Client I.D.:	28VA	Filter Area (mm²):	1256	Page: 1 of 1
Instrument: F	Philips 120	Filter Type:	PC	Comments: 0.01 ml
Magnification:	24,000	Openings Analyzed:	10	ASTM Method: D6480
Acc. Voltage:	100	Grid Opening (mm²):	0.009	or D5755 X

									-	
Grid	Opening	Structure Number*	Structure Type	Length** (cm)	Width** (cm)	SAED	EDS	Comments	Length*** (µm)	Width*** (µm)
1	B4	1	В	7.5	0.7	С	C	photo	3.1	0.29
		2	F	5.5	0.1	С			2.3	0.04
		3	В	23.5	0.3	С			9.8	0.13
		4	В	4.5	0.2	С			1.9	0.08
		5	В	10.5	0.25	С			4.4	0.10
	. C7	6	В	7.0	0.8	С			2.9	0.33
		7	F	51.0	0.1	С		-	21.3	0.04
		8	F	5.0	0.1	С			2.1	0.04
-		9	С	32.5	15	С	-		13.5	6.25
	E3	10	В	6.5	0.2	С			2.7	0.08
		11	М	1.5	0.2	С	С	photo	0.6	0.08
	G4	12	С	12.0	9	С		, prode	5.0	3.75
		13	F	4.0	0.1	С			1.7	0.04
	·	14	F	7.5	0.1	С			3.1	0.04
-	13	15	В	44.0	2.5	С			18.3	1.04
		16	В	11.0	0.6	С			4.6	0.25
		17	В	5.0	0.6	С			2.1	0.25
2	B2	18	В	7.5	0.8	С			3.1	0.33
		19	В	6.0	1 .	С			2.5	0.42
		20	F	5.5	0.1	С			2.3	0.04
	C4	21	В	10.0	0.2	С			4.2	0.08
		22	F	51.0	0.1	С			21.3	0.04
		23	С	3.0	3	С			1.3	1.25
		24	В	3.0	0.2	С			1.3	0.08
	E7	25	В	8.5	0.6	С			3.5	0.25
		26	F	5.4	0.1	С			2.3	0.04
		27	F	10.0	0.1	С			4.2	0.04
-		28	F	2.0	0.1	С			0.8	0.04
	G5	29	F	3.5	0.1	С			1.5	0.04
	ľ	30	F	9.5	0.1	С			4.0	0.04
		31	F	9.0	0.1	С			3.8	0.04
	НЗ	32	F	114.5	0.1	С			47.7	0.04
		33	В	2.5	0.5	С			1.0	0.21
							•	·		

<sup>\*</sup>NFD or NSD = No Fibers Detected or No Structures Detected

Structure Type: B = Bundle, C = Cluster, F = Fiber, M = Matrix

SAED: C = Chrysotile, A = Amphibole

EDS: C = Chrysotile, AM = Amosite, CR = Crocidolite, AC = Actinolite, AN = Anthophyllite, TR = Tremolite, N = Non Asbestos

<sup>\*\*</sup> On Screen Measurement

<sup>\*\*\*</sup> Calculated Actual Measurement (On Screen Measurement X 10,000/Magnification)

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Surface Dust Sample Analysis Sheet

		Tarrage Bust Sample A	maiyaia on	CCL			
MVA Project#_	5394	Amt Collected(cm <sup>2</sup> ):	100	Analyst:	WH		
MVA Sample#_	S0892	Amt Prepped(cm²):	0.01	 Date:	8/14/200	7	
Client I.D.: _	29VA	Filter Area (mm²):	1256	Page:	1 of 1		
Instrument: F	Philips 120	Filter Type:	PC	Comments:	0.01 ml	-	
Magnification: _	24,000	Openings Analyzed:	10	ASTM Method:	D6480		
Acc. Voltage: _	100	Grid Opening (mm²):	0.009	or	D5755	X	

				<del>-</del>				=		
Grid	Opening	Structure Number*	Structure Type	Length** (cm)	Width** (cm)	SAED	EDS	Comments	Length*** (μm)	Width*** (µm)
1	C2	1	F	3.5	0.1	С			1.5	0.04
		2	F	30.0	0.1	С			12.5	0.04
	B4	NSD				<del>                                     </del>			12.0	0.04
	D6	NSD								
<u> </u>	E8	NSD					<u>                                     </u>			
	G7	NSD								
2	B3	3	С	6.5	4.5	С			2.7	4 00
	C5	4	F	11.5	0.25	С	С	PHOTO	2.7	1.88
-	D1	. 5	В	35.0	0.25	С	<u> </u>	РНОТО	4.8	0.10
<b></b>	F2	6	В	8.5				· · · · · · · · · · · · · · · · · · ·	14.6	0.21
	G4		D	6.3	0.7	С			3.5	0.29
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<sup>\*</sup>NFD or NSD = No Fibers Detected or No Structures Detected

Structure Type: B = Bundle, C = Cluster, F = Fiber, M = Matrix

SAED: C = Chrysotile, A = Amphibole

EDS: C = Chrysotile, AM = Amosite, CR = Crocidolite, AC = Actinolite, AN = Anthophyllite, TR = Tremolite, N = Non Asbestos

<sup>\*\*</sup> On Screen Measurement

<sup>\*\*\*</sup> Calculated Actual Measurement (On Screen Measurement X 10,000/Magnification)

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Surface Dust Sample Analysis Sheet

		Duitace Duat Gampic A	mary 313 Offices		
MVA Project#	5394	Amt Collected(cm²): _	100	Analyst: WH	
MVA Sample#	S0893	Amt Prepped(cm²):	0.1	Date: 8/14/200	7
Client I.D.:	30VA	Filter Area (mm²):	1256	Page: 1 of 1	
instrument: P	hilips 120	Filter Type:	PC	Comments: 0.1 ml	
Magnification:	24,000	Openings Analyzed:	10	ASTM Method: D6480	
Acc. Voltage:	100	Grid Opening (mm²):	0.009	or D5755	X

		Structure	Structure	Length**	Width**		550		Length***	Width***
Grid	Opening	Number*	Туре	(cm)	(cm)	SAED	EDS	Comments	(µm)	(µm)
1	A1	NSD			· · · · · · · · · · · · · · · · · · ·					
	B3	NSD								
	C5	NSD								
	D7	NSD				· ·				
	E9	NSD								
2	G1	NSD								
:	H3	NSD								-
	<b>l</b> 5	NSD								
	<b>J</b> 7	NSD								
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<sup>\*</sup>NFD or NSD = No Fibers Detected or No Structures Detected

Structure Type: B = Bundle, C = Cluster, F = Fiber, M = Matrix

SAED: C = Chrysotile, A = Amphibole

EDS: C = Chrysolile, AM = Amosite, CR = Crocidolite, AC = Actinolite, AN = Anthophyllite, TR = Tremolite, N = Non Asbestos

<sup>\*\*</sup> On Screen Measurement

<sup>\*\*\*</sup> Calculated Actual Measurement (On Screen Measurement X 10,000/Magnification)

# Case 01-01139-MANACSCIENTUFIC O TO ANSULTAINERS 10/16/07 Page 21 of 21 Surface Dust Sample Analysis Sheet

0.009

MVA Project# 5394 Amt Collected(cm<sup>2</sup>): 100 Amt Prepped(cm<sup>2</sup>): MVA Sample# S0894 0.01 Client I.D.: 31VA Filter Area (mm2): 1256 Instrument: Philips 120 Filter Type: PC Magnification: 24,000 Openings Analyzed: 10

Grid Opening (mm<sup>2</sup>):

Analyst: WH

Date: 8/16/2007

Page: 1 of 1

Comments: 0.01 ml

ASTM Method: D6480

or D5755 X

		Structure	Structure	Length**	Width**			•	Length***	Width***
Grid	Opening	Number*	Туре	(cm)	(cm)	SAED	EDS	Comments	(µm)	(µm)
1	F2	1	F	30.5	0.1	С			12.7	0.04
	D3	2	В	5.5	0.3	С	С	photo	2.3	0.13
		3	C	2.6	0.7	С			1.1	0.29
<u> </u>	C5	4	В	6.0	0.1	С			2.5	0.04
	В8	5	F	2.5	0.1	С			1.0	0.04
		6	FF	12.5	0.1	С		-	5.2	0.04
<u> </u>		7	F	15.5	0.1	С			6.5	0.04
		- 8	F	5.0	0.1	С			2.1	0.04
	E9	9	7	7.0	0.1	С			2.9	0.04
		10	F	31.5	0.1	С			13.1	0.04
2	C1	11	F	30.0	0.1	С			12.5	0.04
		12	В	33.0	0.7	С			13.8	0.29
		13	В	11.0	0.25	С			4.6	0.10
	٠	14	F	6.0	0.1	С			2.5	0.04
"	D3	NSD								:
	E7	15	F	3.0	0.1	С			1.3	0.04
		16	F	25.5	0.1	С			10.6	0.04
	F4	17	В	6.0	0.2	С			2.5	0.08
	H6 <sup>-</sup>	18	F	20.0	0.1	С			8.3	0.04
٠.	1 1	19	В	5.0	0.5	С			2.1	0.21
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<sup>\*</sup>NFD or NSD = No Fibers Detected or No Structures Detected

Acc. Voltage:

100

Structure Type: B = Bundle, C = Cluster, F = Fiber, M = Matrix

SAED: C = Chrysotile, A = Amphibole

EDS: C = Chrysotile, AM = Amosite, CR = Crocidolite, AC = Actinolite, AN = Anthophyllite, TR = Tremolite, N = Non Asbestos 🙃

<sup>\*\*</sup> On Screen Measurement

<sup>\*\*\*</sup> Calculated Actual Measurement (On Screen Measurement X 10,000/Magnification)